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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte HOLGER SEDLAK, OLIVER KNIFFLER,
UWE WEDER, and SHUWEI GUO

Appeal 2009-002584
Application 10/701,058
Technology Center 2800

Decided:¹ July 31, 2009

Before JOSEPH F. RUGGIERO, CARLA M. KRIVAK, and
THOMAS S. HAHN, *Administrative Patent Judges*.

KRIVAK, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134(a) from a final rejection of claims 1, 3, 4, 6, 7, and 9. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

¹ The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, begins to run from the decided date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

STATEMENT OF THE CASE

Appellants' claimed invention is a frequency regulating circuit (Spec. 2:18-24). The frequency regulating circuit filters out individual clock pulses of a clock signal having a constant frequency based on a comparison of measured current being consumed by a circuit configuration with a threshold current value (Spec. 5:9-20).

Independent claim 1, reproduced below, is representative of the subject matter on appeal.

1. A frequency regulating circuit for the current-consumption-dependent clock supply of a circuit configuration, comprising:
 - a current measuring device for measuring an instantaneous current consumption of the circuit configuration;
 - means for comparing the instantaneous current measured by said current measuring device with a definable threshold value;
 - a controllable clock supply circuit having:
 - an output to be connected to a clock input of the circuit configuration;
 - a clock generator generating a clock signal with clock pulses, said clock generator generating a constant maximum internal frequency; and
 - a pulse filter for filtering clock pulses from said clock signal from said clock generator, said pulse filter including a control input, a filtered clock signal being provided to said output;
 - a control device connected to said clock supply circuit and driving said clock supply circuit based upon the measured current consumption, said control device providing a control signal to said control input of said pulse filter when said means for comparing determine that the instantaneous current consumption exceeds the definable threshold value; and
 - said pulse filter suppressing an individual clock pulse of said clock signal generated by said clock signal generator, in response to said control signal at said control input, such that said control device

adjusts said clock frequency to provide at said output, at any time, the maximum possible clock frequency corresponding to a maximum permissible current consumption of the circuit.

REFERENCES

Durham	US 5,761,517	Jun. 2, 1998
Wang	US 5,943,203	Aug. 24, 1999

The Examiner rejected claims 1, 3, 4, 6, 7, and 9 under 35 U.S.C. § 103(a) based upon the teachings of Durham and Wang.

Appellants contend that Durham teaches a multitude of control signals used to determine whether pulses will be suppressed by a shift register (App. Br. 12) and fails to teach suppressing an individual clock pulse in response to a control signal (App. Br. 10-14). Appellants further contend that the state machine-based system of Durham that incrementally changes a frequency (App. Br. 14-15) is incompatible with the instantaneous current sensor of Wang, and thus, Durham and Wang cannot be combined (App. Br. 14-16).

ISSUES

Did Appellants establish the Examiner erred in finding that the frequency regulating circuitry of Durham suppresses an individual clock pulse in response to a control signal from Wang?

Did Appellants establish the Examiner erred in finding that the frequency regulating circuitry of Durham is combinable with the current sensor of Wang to obtain Appellants' claimed invention?

FINDINGS OF FACT

1. Appellants' frequency regulating circuit includes a current measuring device 2, a comparator 12 for comparing a measured current with a definable threshold value 13, and a control device 3 for providing a control signal to a controllable clock supply circuit 4 when the measured current exceeds the threshold (Spec. 6:21-7:4, 8:7-10; Figs. 1-2).

2. Appellants' controllable clock supply circuit includes a clock generator 7 for generating a constant internal frequency pulsed clock signal and a pulse filter 8 for filtering/suppressing an individual clock pulse from the pulsed clock signal (Spec. 7:24-8:5; Fig. 2).

3. Durham teaches a clock frequency-reducing circuit including a sensor 18 for measuring current and generating a control signal indicating an excessive power consumption condition exists (col. 1, ll. 55-59; col. 2, ll. 55-59; col. 5, ll. 20-22; Fig. 1A). In one example, the control signal causes a state machine 16 and associated circuitry (1-7, 10-13, and 20) (Figs. 1A, 1B) to periodically suppress every fourth clock pulse from an oscillator 27, thereby reducing the overall number of oscillator clock pulses by 25 percent (col. 5, ll. 8-42; col. 6, ll. 29-52; Figs. 1A, 1B).

4. Wang teaches a current sensor 23 and a comparator 32. The comparator compares current measured by the current sensor with a threshold value to determine if an over-current condition exists (OVRI) (col. 4, ll. 6-19; Fig. 1).

PRINCIPLES OF LAW

Section 103 forbids issuance of a patent when "the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been

obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.”

KSR Int'l Co. v. Teleflex Inc., 550 U.S. 398, 406 (2007).

In *KSR*, the Supreme Court reaffirmed that “[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *Id.* at 416.

Where no explicit definition for a term is given in the specification, the term should be given its ordinary meaning and broadest reasonable interpretation. *E-Pass Techs., Inc. v. 3Com Corp.*, 343 F.3d 1364, 1368 (Fed. Cir. 2003).

ANALYSIS

The Examiner rejected claims 1, 3, 4, 6, 7, and 9 under 35 U.S.C. § 103(a) as obvious over Durham and Wang. Appellants argue claims 1, 4, and 7 together (App. Br. 10-17), with the dependent claims standing or falling therewith (App. Br. 17).

The Examiner finds that Wang provides an over-current control signal by comparing the output of a current sensor with a threshold current value in a comparator (FF 4; Ans. 4). When the threshold current value is exceeded, Wang provides the control signal, which the Examiner finds is an explicit teaching of Durham’s control signal (Ans. 4). The Examiner also finds the control signal of Durham periodically suppresses, for example, every fourth clock pulse, thus, suppressing an “individual” clock pulse (FF 3; Ans. 4). Appellants contend, however, that Durham and Wang fail to teach or suggest suppressing an individual clock pulse of a clock signal in response to a control signal (App. Br. 10-14; Reply Br. 2-5; FF 1, 2).

However, because each suppressed clock pulse in Durham is an individual clock pulse suppressed by a control signal (FF 3, 4), the limitation in claim 1 requiring that an individual clock pulse be suppressed in response to a control signal is met by the teachings of Durham and Wang. Note that the term “individual” is not defined in Appellants’ specification, and thus, is given its ordinary meaning and broadest reasonable interpretation. *E-Pass Techs.*, 343 F.3d at 1368. Thus, Appellants’ assertion that periodic suppression of individual clock pulses by a control signal does not correspond to suppressing individual clock pulses by a control signal, as claimed, is without merit.

Appellants further assert that Durham’s frequency regulating circuitry is incompatible with Wang’s current sensor (App. Br. 14-16). Appellants contend:

There is no way to combine the teachings of DURHAM, which teaches a stateful or stepped, and thus, a persistent system, with the teachings of WANG (i.e., in the manner suggested in the final Office Action) so as to provide an instantaneous system, without destroying the teachings of DURHAM.

App. Br. 15 (emphasis omitted).

The Examiner finds that Durham’s sensor measures current and generates a control signal indicating an excessive power consumption condition exists (FF 3; Ans. 5). The Examiner further finds, however, that Durham lacks an explicit recitation of the claimed current measuring device for measuring an instantaneous current consumption and the corresponding generation of a control signal when the instantaneous current consumption exceeds the definable threshold value (Ans. 4). The Examiner asserts that Wang provides an explicit description of generating an over-current control signal (OVRI) by comparing the output of a current sensor with a threshold

current value in a comparator (FF 4; Ans. 4). Thus, the current sensor of Wang can be combined with the circuitry of Durham to obtain Appellants' invention. Because both the sensor and comparator of Wang and the sensor and circuitry of Durham provide the same or similar high power indication, Wang and Durham are compatible for the teachings relied upon by the Examiner. Therefore, Appellants' argument that the sensor of Wang cannot be combined with Durham is not persuasive (FF 4; Ans. 5).

Appellants have not provided sufficient evidence to overcome the Examiner's prima facie case of obviousness with respect to claims 1, 3, 4, 6, 7, and 9 over the combination of Durham and Wang.

CONCLUSION

Appellants did not establish the Examiner erred in finding that the frequency regulating circuitry of Durham suppresses an individual clock pulse in response to a control signal from Wang.

Appellants did not establish the Examiner erred in finding that the frequency regulating circuitry of Durham is compatible with the current sensor of Wang.

DECISION

The Examiner's decision rejecting claims 1, 3, 4, 6, 7, and 9 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

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Application 10/701,058

babc

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